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Colorado Healthy Schools Smart Source: Testing the Association Between Collaboration with Community Mental Health Centers and Tier 2 Implementation

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Abstract

Implementing targeted (Tier 2) interventions for youth at risk of developing behavioral health concerns is critical for a comprehensive approach to school mental health. Given challenges in school-based implementation of targeted interventions, identifying factors associated with their implementation may contribute to a better understanding of contexts favorable to their delivery. Collaboration with community mental health centers (CMHCs), due to their capacity to share knowledge and resources with schools and facilitate alignment of Tier 2 interventions with other school-based prevention efforts, may be one factor that facilitates targeted intervention implementation. The current study tested the association between collaboration with CMHCs and the implementation of Tier 2 programs in 451 schools that completed Colorado Healthy Schools Smart Source, a comprehensive assessment of school health best practices. Items assessed whether schools collaborate with CMHCs and whether schools provide in-school curricular programs (Tier 2). A logistic regression model tested the association between collaboration with CMHCs and implementation of Tier 2 programs while controlling for the following covariates: having a wellness committee, a school-wide approach to social and emotional learning, in-school therapeutic services, as well as referrals for mental health services outside of school, and school counselor availability. Results demonstrated that schools collaborating with CMHCs were more than twice as likely to implement Tier 2 programs as those that did not.

Keywords Best practices · School health assessment · School mental health · Targeted intervention · Community mental health centers · School-community partnerships

Introduction

Research across education, social science, and public health disciplines has demonstrated the relationship between health and educational outcomes such that physically and emotionally healthy students are more likely to be better learners and successful adults (Basch, 2010; Bradley & Greene, 2013; Michael, Merlo, Basch, Wentzel, & Wechsler, 2015).

Despite this critical connection, less than half of adolescents in the USA with mental health concerns receive treatment, services, or support (Merikangas et al., 2011). Of the minority of youth that do, 70–80% of them access these services in schools (Rones & Hoagwood, 2000), establishing schools as critical mental health providers (Burns et al., 1995). Additionally, adolescents are more likely to seek mental health support through school-based delivery as compared to outside settings (Slade, 2002).
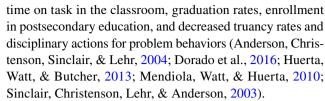
To meet the complex social, behavioral, and academic needs of all students, schools benefit from systems-level implementation of evidence-based practices (Nelson, Martella, & Marchand-Martella, 2002; Sugai & Horner, 2002). One approach, positive behavior support (PBS), promotes a school-wide, prevention-based model centered on a multi-tiered systems of supports (MTSS; Sugai & Horner, 2009). As recommended by a growing body of research (Eber et al., 2002; Freeman, Grabill, Rider, & Wells, 2014; Lever et al.,

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2015), the Colorado Framework for School Behavioral Health Services (Colorado Framework) expands on PBS by blending MTSS with systems of care principles, in which a community-based approach is used to deliver comprehensive and integrated services within the school network (Stroul & Friedman, 1986; The Colorado Education Initiative, 2013). These services are organized based on a layered continuum of increasing intensity: Tier 1 which targets all students regardless of risk level and includes strategies such as universal screenings, school-wide social and emotional learning (SEL) opportunities, and a referral system; Tier 2 which targets select students at risk of behavioral health concerns and includes group and/or individual interventions and progress monitoring; and Tier 3 which targets students with chronic or intense problem behaviors and includes therapy, crisis response plans, and reentry programs (Sugai et al., 2000; The Colorado Education Initiative, 2013).

Tier 2 In-School Programs

Unlike universal Tier 1 supports and intensive Tier 3 interventions for which extensive research has been conducted, Tier 2 programs have received little attention in the literature (Stormont, Reinke, Herman, & Lembke, 2012). These secondary interventions are necessary for meeting the needs of 5–15% of a given student body who display early signs of behavioral health disorders and whose behavior has not responded to Tier 1 supports (Sugai et al., 2000). Such youth have traditionally "slipped through the cracks," requiring more than universal support of Tier 1, but less than intensive interventions of Tier 3 (Stormont et al., 2012, p. 5). Students are often selected for these targeted interventions by use of academic, attendance, and discipline data, universal screenings, or by teachers who identify behavioral concerns in their students (Anderson & Borgmeier, 2010; Wilson & Lipsey, 2007). Common risk factors for which students are selected for Tier 2 programs include disengagement, poor academic performance, impulsivity, and trauma exposure (Lever et al., 2015). As recommended by Bullock & Gable (2006), Tier 2 interventions should (a) address both academic and behavioral needs through explicit skill instruction, (b) build on the strengths of students and families to promote skill adoption in both school and home environments, and (c) be sustainable, flexible, positive, collaborative, culturally appropriate, and regularly evaluated. Examples of evidence-based Tier 2 programs that demonstrate the above critical components include Advancement Via Individual Determination (AVID; Swanson, 1989), Check & Connect (Evelo, Sinclair, Hurley, Christenson, & Thurlow, 1996), and Healthy Environment and Response to Trauma in Schools (HEARTS; Dorado, Martinez, McArthur, & Leibovitz, 2016). Participation in these programs has been linked to positive student outcomes, including improved academic performance, attendance rates,

time on task in the classroom, graduation rates, enrollment in postsecondary education, and decreased truancy rates and disciplinary actions for problem behaviors (Anderson, Christenson, Sinclair, & Lehr, 2004; Dorado et al., 2016; Huerta, Watt, & Butcher, 2013; Mendiola, Watt, & Huerta, 2010; Sinclair, Christenson, Lehr, & Anderson, 2003).

Despite the demonstrated positive impact of Tier 2 programs, their planning, implementation, and evaluation have proved more challenging for schools compared to that of Tier 1 and Tier 3 programs due to lacking awareness and knowledge of such interventions among school staff and underdeveloped school and mental health systems (Anderson & Borgmeier, 2010; Behrens, Lear, & Price, 2013; Hoyle, Marshall, & Yell, 2011; Stormont et al., 2012). Although most schools collect information that can help assess student need for Tier 2 intervention (e.g., academic report cards, attendance records, discipline referral data), few schools adequately use these data to inform interventions (Anderson & Borgmeier, 2010). This lack of fidelity to evidence-based practices and data-driven decisions can pose significant hindrance to the successful implementation of Tier 2 programs and prohibit relevant progress monitoring and evaluation (Anderson & Borgmeier, 2010; Hoyle et al., 2011). In addition, schools face uncertainty around appropriate organization, staffing, and funding related to Tier 2 programs more so than within Tier 1 and Tier 3 (Behrens et al., 2013; Stormont et al., 2012). Thus, to strengthen school mental health systems (including delivery of Tier 2 interventions) and better support the needs of all students, schools are recommended to collaborate with community mental health centers (CMHCs; Andis et al., 2002; Freeman et al., 2014; New Freedom Commission on Mental Health, 2003; Stephan, Weist, Kataoka, Adelsheim, & Mills, 2007).

Collaboration with CMHCs

Originally established through the Community Mental Health Act of 1963 and associated amendments, the federal CMHC program was designed to deinstitutionalize mental health following a shift in national ideology and an influx of government funds to community providers (Dixon & Goldman, 2003; Hartley, Bird, Lambert, & Coffin, 2002; National Council for Behavioral Health, n.d.; Sharfstein, 2000). Today, CMHCs are colloquially synonymous with local mental health centers and, though they no longer receive federal operating grants, remain an important "mental health safety net" for providing a broad array of services and care to their communities (Hartley et al., 2002, p. 2; Sharfstein, 2000). The Colorado Framework identifies these community-based services as one of the three models for service delivery within a comprehensive school mental health system, wherein community providers strategically aid schools in expanding their existing mental health

supports and services across the prevention–intervention continuum (Lever et al., 2015; The Colorado Education Initiative, 2013). Although coordinating systems of care with local mental health agencies is valuable in all schools, the framework emphasizes the importance of community collaboration in school and district settings that have limited to no access to school-based health professionals (The Colorado Education Initiative, 2013). Such collaboration between CMHCs and traditional school mental health services offered by school counselors, psychologists, and social workers through an expanded school mental health program has been shown to positively impact student behavioral and academic outcomes (Armbruster & Lichtman, 1999; Ballard, Sander, & Klimes-Dougan, 2014; Nabors & Reynolds, 2000; Weist, Paskewitz, Warner, & Flaherty, 1996).

Whereas the literature directly linking school–CMHC collaboration and delivery of Tier 2 programs is scant, the beneficial nature of cross-sector collaboration has been studied through other programmatic partnerships that exemplify the importance of community collaboration. For instance, through the HEARTS program, a school–university collaboration at the University of California, San Francisco, clinicians increased capacity of school staff to implement trauma-informed practices for at-risk students (Dorado et al., 2016). Similarly, other types of partnership between health, public health, and public services sectors have been shown to drastically increase knowledge and resources and create greater equity across populations (Axelsson & Axelsson, 2006; Cohen et al., 2010; Selsky & Parker, 2010; Spezza & Borbely, 2013).

Given the value of cross-sector partnership, and the challenges of Tier 2 delivery in schools, the goal of this study was to assess the association of collaboration between schools and CMHCs with the implementation of Tier 2 programs. Specifically, this study addressed the following research question: Does collaboration between schools and CMHCs increase the likelihood of Tier 2 implementation while accounting for other factors potentially associated with the implementation of Tier 2 programs? We hypothesized that collaboration with a CMHC would be positively associated with schools' use of in-school curricular programs, controlling for the following covariates: the presence of a wellness committee, a school-wide approach to SEL, in-school therapeutic services, as well as making referrals for services outside of school for mental health needs, and school counselor availability.

Methods

Smart Source Development and Participants

The hypothesis was tested with data from the Colorado Healthy Schools Smart Source (Smart Source) tool (The Colorado Education Initiative, 2017). Smart Source is a recently developed comprehensive inventory of best practices related to school health and is designed to inform improvements in school, district, and state policies and practices that positively impact student health and academic outcomes. The development of Smart Source was a collaborative effort among the Colorado Education Initiative (CEI), the Colorado Department of Education (CDE), the Colorado Department of Public Health and Environment, and Kaiser Permanente Colorado, with significant input from community stakeholders including school and district representatives, researchers, evaluators, funders, and other health and safety experts. In order to develop the Smart Source inventory and establish face validity, input about survey items and methodology was collected through think-aloud interviews (a type of cognitive interview), key informant interviews, focus groups, online surveys, and two pilot administrations. The ultimate goal of Smart Source was to streamline similar assessments of health and wellness, ensuring minimally burdensome and consistent data collection across the state. Items on the Smart Source tool align with the Whole School, Whole Community, Whole Child (WSCC) model out of the Centers for Disease Control and Prevention, the national framework for implementing comprehensive health in schools (CDC, 2014; Lewallen et al., 2015).

During both pilots, recruitment of identified schools occurred in the summer prior to each fall administration. Upon the decision to participate in the free and voluntary assessment, schools designated a site coordinator to oversee the online completion of Smart Source. School personnel were encouraged to complete the assessment as a team to increase consensus regarding the school's responses and buy-in for assessing school health efforts. Input from administrators, physical education teachers, health educators, school nurses, school counselors, food service staff, members of school wellness teams, as well as students, parents, and community partners was strongly encouraged. Technical assistance was provided throughout each administration. Smart Source pilots included elementary, secondary, and combined school versions of the tool, as different practices and policies exist depending on the grades served.[1]

Smart Source was first piloted between October 2014 and January 2015 in 77 of Colorado's 1765 K-12 public schools (4.4%), including 40 elementary schools, 32 secondary schools, and 5 combined schools. Recruitment of schools relied on requesting participation from districts and schools with which CEI and partnering agencies had an existing relationship and targeted outreach to yield a diverse group of

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[1] Combined schools are schools that serve at least one elementary (K-5) and one secondary (6–12) grade. Examples include K-8 and K-12 schools.

participating schools based on various characteristics, such as district size, region, school level (i.e., elementary, secondary, and combined), and setting (e.g., urban, rural).[2] Schools that participated in the first pilot were given $300 for the time and effort required to provide feedback on the items and process. Results from the first pilot led to various tool refinements, including data-informed adjustments to items within the counseling, psychological, and social services section.

A similar recruitment strategy was applied to a second pilot of 451 K-12 public schools (25.2% of Colorado schools, representing 41.7% of Colorado districts), between October 2015 and January 2016, which allowed for analysis of aggregate data at the state and regional levels, and by district size. The schools that participated in the second pilot, of which 67 also participated in the first pilot, included 226 elementary schools, 175 secondary schools, and 50 combined schools from rural, urban, and suburban communities. Schools that participated in the second pilot were also given $300 as an incentive.

The second Smart Source pilot was larger and more representative than the first in terms of statewide characteristics including geographic location, school level, district size, free and reduced-price lunch (FRL) percentage, and truancy rate. Therefore, our hypothesis was tested using school-level data from the second pilot. Schools participating in the second pilot ranged from 15 to 4070 students ($M = 513$, $SD = 417$) and districts ranged from 37 to 90,234 students ($M = 10,202$, $SD = 18,731$). More than half (58.6%) of the sample represented districts from outlying town settings with populations between 1001 and 7000 persons ($n = 22$, 29.3%) and remote areas with populations equal to or less than 1000 persons ($n = 22$, 29.3%).[3] The sample was reflective of the state with an average FRL eligibility rate of 45.1%, truancy rate of 2.1%, and graduation rate of 78.7%. Descriptive data for Smart Source's 2015 sample are compared to statewide statistics in Table 1.

Following its second pilot, Smart Source became one of the first school-level data collection efforts in Colorado to provide regional and state aggregate data on school mental health practices and policies. Whereas all items included in Smart Source are aligned with the WSCC model (CDC, 2014), the counseling, psychological, and social services component is further aligned with the Colorado Framework (The Colorado Education Initiative, 2013). Smart Source is, therefore, an ideal tool for testing associations between best practice implementation across multiple components of comprehensive school health.

Table 1 Sample and state demographic data

Variable	M	SD	n (%)
District			
Number of districts[a]			75 (41.7%)
District size (range 37–90, 234)[b]	10,073	18,639	
District setting			
Denver metro			11 (14.6%)
Outlying city			7 (9.3%)
Outlying town			22 (29.3%)
Remote			22 (29.3%)
Urban–suburban			13 (17.3%)
School			
Number of schools[c]			451 (25.2%)
School size (range 15–4, 070)	513	417	
FRL eligibility (%)	45.1	24.3	
Truancy (%)	2.1	3.3	
Graduation[d] (%)	78.7	19.5	
Level			
Elementary			226 (50.1%)
Secondary			175 (38.8%)
Combined			50 (11.1%)

[a]Number of districts excludes Colorado BOCES ($n = 5$) and detention center ($n = 1$)

[b]Ranges presented represent Smart Source sample

[c]The n of 1792 for Colorado schools excludes detention centers and schools categorized as early childhood ($n = 60$)

[d]Only schools that include the 12th grade are included in graduation rate ($n = 95$ for the Smart Source sample)

Measures

Independent Variable

Collaboration with CMHCs was measured using the item, "Does your school collaborate with a mental health center in developing or coordinating health activities/programs for students?" This item was completed on a dichotomous response scale by indicating yes or no.

Dependent Variable

Implementation of in-school curricular programs (Tier 2) was measured using the item, "Does your school provide in-school curricular supports or programs (e.g., AVID, Check & Connect) for mental/behavioral issues?"[4] This item was

completed on a dichotomous response scale by indicating yes or no.

Covariates

Based on components of an effective school mental health system as identified within the Colorado Framework, variables potentially associated with implementing in-school curricular programs (Tier 2) include the presence of a wellness committee, a school-wide approach to SEL, in-school therapeutic services, as well as making referrals for services outside of school for mental health needs, and school counselor availability (The Colorado Education Initiative, 2013). As such, the following Smart Source items were entered as possible covariates: "Is there one or more than one group (e.g., school health council, committee, team) at your school that offers guidance on the development of policies or coordinates activities on health topics?," "Does your school provide a school-wide approach (e.g., PBIS) or program (e.g., BrainWise) to support social and emotional learning of all students?," "Does your school provide in-school therapeutic services (e.g., one-on-one or small group counseling) for mental/behavioral issues?," and "Does your school make referrals to therapeutic services outside of school for mental/behavioral issues?" All the above items were completed on a dichotomous response scale by indicating yes or no. As a fifth covariate, availability of a school counselor was assessed with the following item: "How many hours per week, on average, is a school counselor present at your school?" Responses included 0, 1–10, 11–20, 21–30, or 31–40 h/week. Other potential covariates included commonly used school and district descriptors such as school and district size, district setting, school level, and rates for FRL eligibility, truancy, and graduation.

Data Analysis

Means or proportions were first computed for each variable to assess collaboration with a CMHC. Independent sample t-tests and Chi-square tests of independence were performed to determine whether means and proportions were significantly different by district- and school-level characteristics. Bivariate correlations were then computed among all study variables. A logistic regression model then tested the relationship between collaboration with a CMHC and the implementation of in-school curricular programs. Covariates were entered into this regression depending upon whether they had statistically significant bivariate correlations with in-school curricular programs. All analyses were conducted using Statistical Package for the Social Sciences (SPSS), version 24.

Results

Collaboration with a CMHC by School Characteristics

Overall, slightly more than half (52.1%) of schools reported collaborating with a mental health center in developing or coordinating health activities/programs for students. Table 2 illustrates statistically significant district and school differences in collaboration with a CMHC. There was a significant difference in collaboration such that smaller districts were more likely to collaborate with a CMHC. Further, a Chi-square test of independence indicated a significant association between district setting and collaboration, such that those in outlying city and town settings were more likely to collaborate with a CMHC. For school-level characteristics, there was a significant difference in collaboration for average rates of FRL eligibility and truancy such that schools with higher rates of FRL eligibility and truancy were more likely to collaborate with a CMHC. Further, a Chi-square test of independence indicated a significant association between school level and collaboration, such that secondary schools were more likely to collaborate with CMHCs than elementary or combined schools.

Bivariate Correlations Among Study Variables

As a preliminary analysis, correlations were computed between all potential covariates and the dependent variable (see Table 3). Phi coefficient was conducted to assess the relationship between two dichotomous variables. Pearson's r was conducted to assess the relationship between dichotomous and polychotomous, two polychotomous, or two interval or ratio variables. Point-biserial correlations were conducted to assess the relationship between dichotomous and interval or ratio variables. For the relationships between ordinal and dichotomous variables, rank-biserial correlations was conducted and eta-squared was conducted for ordinal and internal or ratio variables. Table 3 illustrates that providing in-school therapeutic services, making referrals to therapeutic services outside of school, the implementation of a wellness committee, school-wide approach to SEL, and school counselor availability were significantly correlated with implementing in-school curricular programs. These empirically identified covariates were therefore included in the logistic regression model. District size and setting, school size, rates of FRL eligibility, truancy, and graduation, as well as school level and implementation of a wellness policy, were not significantly associated with the implementation of in-school curricular programs and were excluded from further analyses.

Table 2 Sample characteristics, percent, or mean (SD): comparisons across collaboration with a CMHC

Variable[a]	Collaboration with a CMHC		t (df)	χ^2 (df, N)
	Yes ($n = 235$)	No ($n = 213$)		
District[b]				
District size	23,110.40 (26,190.89)	28,789.26 (27,509.64)	2.24 (445)*	
District setting (%)				9.91 (4447)*
Denver metro	47.0	53.0		
Outlying city	68.8	31.3		
Outlying town	65.5	34.5		
Remote	44.4	55.6		
Urban–suburban	51.9	48.1		
School				
School size	540.79 (472.95)	485.08 (344.26)	− 1.43 (426.62)	
FRL eligibility (%)	49.20 (23.17)	40.76 (24.78)	− 3.72 (446)***	
Truancy (%)	2.45 (3.49)	1.79 (2.95)	− 2.15 (446)*	
Graduation[c] (%)	77.59 (21.23)	81.07 (16.38)	0.84 (91)	
Level (%)				14.84 (2448)**
Elementary	45.6	54.4		
Secondary	64.0	36.0		
Combined	44.0	56.0		

Difference in proportions or means statistically significant, *$p < .05$, **$p < .01$, ***$p < .001$

[a]Three schools (0.7% of the sample) did not respond to the item about collaboration with a CMHC

[b]Excludes Colorado BOCES ($n = 1$)

[c]Only secondary or combined schools that include the 12th grade and responded yes or no to collaboration with a CMHC ($n = 93$)

The Association Between CMHC Collaboration and Provision of In-School Curricular Programs

Overall, more than two-thirds (69.6%) of schools reported providing in-school curricular supports or programs. A logistic regression containing one independent variable (collaboration with a CMHC) and five covariates (the presence of a wellness committee, school-wide approach to SEL, in-school services, as well as making referrals to outside services, and school counselor availability) tested the association between collaboration with a CMHC and the likelihood that schools implement in-school curricular programs. As shown in Table 4, the full model containing all variables was statistically significant, χ^2 (6, $N = 414$) = 93.45, $p < .001$, indicating that the model was able to distinguish between schools that implement and do not implement in-school curricular programs. The model as a whole explained between 20.2% (Cox and Snell R square) and 28.5% (Nagelkerke R squared) of the variance in the implementation of in-school curricular programs, and correctly classified 77.8% of schools. Of the five covariates, the following four were significant: the presence of a wellness committee (OR 1.95; 95% CI 1.14, 3.34), implementation of a school-wide approach to SEL (OR 3.19; 95% CI 1.76, 5.78), providing in-school services (OR 6.05; 95% CI 2.50, 14.67), and school counselor availability (OR 1.31; 95% CI 1.13, 1.52).

Collaboration with a CMHC was significantly positively associated with implementation of in-school curricular programs (OR 2.23; 95% CI 1.36, 3.66), such that schools collaborating with a CMHC were more than twice as likely to implement in-school curricular programs as those that did not collaborate with a CMHC.

Discussion

The current study tested the association between school collaboration with CMHCs and the implementation of in-school Tier 2 programs. Results indicated that collaboration with a CMHC was associated with increased schools' odds of implementing Tier 2 in-school curricular programs after controlling for several covariates, including having a wellness committee, a school-wide approach to SEL, in-school therapeutic services, as well as referring for services outside of school for behavioral health needs, and school counselor availability. Therefore, our data suggest that collaborating with CMHCs was positively associated with schools' implementation of Tier 2 programs even after covarying for school-wide health and wellness development, access to a school counselor, and provision of Tier 1 or Tier 3 supports.

Table 3 Intercorrelation of study variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. In-school programs	1	0.31***	0.16**	0.06	0.04	0.07	0.03	− 0.05	0.10	− 0.09	0.20***	0.06	0.20***	0.23***
2. In-school services		1	0.20***	0.15**	0.19**	0.10*	0.00	0.06	− 0.11	− 0.17**	0.14**	0.04	0.16**	0.11*
3. Referrals			1	− 0.01	0.09	0.01	0.04	0.06	− 0.11	0.07	0.01	0.09	0.00	0.02
4. District size				1	0.63***	0.21***	− 0.06	0.06	− 0.06	0.01	− 0.04	− 0.16***	0.12*	− 0.24***
5. District setting					1	0.15***	0.01	0.03**	0.14**	0.13	0.03	0.13	0.25***	0.28***
6. School size						1	− 0.20***	0.16**	0.15	0.07***	− 0.03	0.00	− 0.04	0.19***
7. FRL eligibility							1	0.32***	− 0.21*	0.01	− 0.07	− 0.04	0.04	0.05
8. Truancy								1	− 0.58***	0.10***	− 0.08	− 0.11*	− 0.05	0.20***
9. Graduation									1	0.01	0.09	0.33**	− 0.10	− 0.07
10. Level										1	0.04	0.05	0.30***	0.29***
11. Wellness committee											1	0.23***	0.00	0.14**
12. Wellness policy												1	0.06	0.04
13. Approach to SEL													1	− 0.07
14. Counselor availability														1

Intercorrelation statistically significant, $*p < .05$, $**p < .01$, $***p < .001$; correlation coefficients reflect the appropriate statistic according to variable types

Colorado BOCES ($n = 1$) were excluded from correlations including district size and district setting

There are several potential explanations for these preliminary findings. One explanation is that CMHCs may inform or assist schools in the implementation of Tier 2 programs. For instance, community providers sourced from CMHCs and working within the school setting may be directly involved with the planning and delivery of secondary interventions, including identifying at-risk students, training school staff, and delivering skill-based curriculum to select students (Dorado et al., 2016). A second potential explanation is that schools with mental health systems collaborating with CMHCs exclusively on Tier 1 and/or Tier 3 supports may have greater awareness of the importance of Tier 2 programs and the knowledge, skills, and resources necessary for their successful implementation. Given that community providers most commonly work in schools to administer Tier 3 intensive services (Lever et al., 2015), the implementation of Tier 2 programs may alternatively occur as a result of CHMCs' indirect support. Future longitudinal research should explore these and other potential explanations for these preliminary results.

Whereas previous research has demonstrated the benefit of cross-sector collaboration (Dorado et al., 2016; Selsky & Parker, 2010; Spezza & Borbely, 2013), study results contribute to the current literature by suggesting collaboration between schools and CMHCs is an important best practice, specifically for schools' implementation of Tier 2 programs. Partnering with CMHCs may help narrow the research-to-practice gap regarding the implementation of school-based Tier 2 programs (Stormont et al., 2012) by utilizing the capacity of CMHCs to provide direct services in schools and/or increase knowledge and skills of existing school mental health systems. This collaboration may be especially important for supporting the academic and behavioral health needs of students given the challenges of delivering Tier 2 programs (Anderson & Borgmeier, 2010; Armbruster & Lichtman, 1999; Ballard et al., 2014).

Limitations

Results should be considered in light of study limitations. First, Smart Source includes Colorado-specific indicators (e.g., items related to Colorado legislation and the Colorado Framework) to address gaps in school health policy and practice assessments. In addition, Smart Source participation was voluntary. Therefore, the study sample may not be representative of all Colorado schools and may not generalize to other states or represent national data. The sample was, however, demographically similar to the overall state in terms of school size, FRL eligibility, truancy, graduation, and school level. Regardless, results represent a first step in testing associations between collaboration with CMHCs and Tier 2 programs to be confirmed by larger, more nationally representative samples.

Table 4 Logistic regression predicting implementation of in-school curricular programs

Variable	B	SE	Wald	df	p	Odds ratio	95.0% CI for odds ratio	
							Lower	Upper
Collaboration	0.80	0.25	10.15	1.00	0.00	2.23	1.36	3.66
Covariates								
In-school services	1.80	0.45	15.89	1.00	0.00	6.05	2.50	14.67
Referrals	0.69	0.38	3.35	1.00	0.07	1.99	0.95	4.42
Wellness committee	0.67	0.27	5.96	1.00	0.02	1.95	1.14	3.34
Approach to SEL	1.16	0.30	14.51	1.00	0.00	3.19	1.76	5.78
Counselor availability	0.27	0.08	13.18	1.00	0.00	1.31	1.13	1.52

A second limitation was that a single Smart Source survey was completed for each school. Thus, any within-school variability in perspectives regarding specific policies or practices may not have been captured. However, schools were asked to complete the assessment as a team, with multiple perspectives represented, to ensure there was group consensus on Smart Source items.

A third limitation was that, due to the novelty of Smart Source and variation in familiarity with the Colorado Framework, or MTSS more generally, pilot participants may have lacked some clarity on items assessing Tier 1, Tier 2, and Tier 3 strategies. With the goal of creating an accessible survey for general school personnel, and per the recommendation of content experts during tool development, plain language was used to provide distinguishing characteristics and examples of each tier. For example, "in-school *curricular* [emphasis added] supports or programs (e.g., AVID, Check & Connect)" was used to describe Tier 2 interventions, whereas "in-school *therapeutic* [emphasis added] services (e.g., one-on-one or small group counseling)" specified Tier 3. Instructions were also provided directing respondents to request assistance from their school mental health professionals, who were likely more knowledgeable of the differences between types of school mental health services.

The Smart Source survey also did not provide a definition of "collaboration" for reference on the survey. Combined with the dichotomous (i.e., yes/no) nature of this variable, this renders it difficult to draw conclusions about the validity of responses and impossible to determine how variability in the amount or quality of collaboration with a CMHC may influence of the likelihood of Tier 2 program implementation. Future research should explore whether and how different aspects of school—CMHC collaboration are related to Tier 2 program implementation.

Finally, the cross-sectional study design prohibits causal inference. Although a significant association between the collaboration with CMHC and the implementation of Tier 2 programs exists, it cannot be determined whether school–CMHC collaboration predicts Tier 2 implementation, Tier 2 implementation predicts collaboration, or there are untested variables responsible for this association. This limitation reinforces the need for future longitudinal experimental, or quasi-experimental, designs to confirm current study results.

Conclusion and Future Directions

Targeted interventions are critical for any comprehensive approach to school mental health promotion. However, the planning, implementation, and evaluation of Tier 2 programs, when compared to those of Tier 1 and Tier 3, are especially challenging for schools due to limited knowledge and resources and underdeveloped school mental health systems. Through the use of Smart Source, this study demonstrated that collaboration between schools and CMHCs was significantly associated with a greater likelihood of Tier 2 program implementation. Should future longitudinal research confirm this association, one future direction could be to increase opportunities for schools, within and outside of Colorado, to collaborate with CMHCs. Such collaboration might include representation of CMHC members on school wellness teams, provision of professional development and trainings for school staff by CMHC professionals, and the integration of community providers into the entire school mental health system, from universal screenings to intensive services. Future directions may also include further Smart Source refinement to ensure measurement reliability, validity, and appropriateness to participants regarding survey length.

To further explore the association between collaboration with CMHCs and the implementation of in-school Tier 2 programs, data from future administrations of Smart Source can be analyzed over time to assess for longitudinal trends in Colorado. Additionally, so as to not introduce duplicative data collection, separate studies should utilize qualitative methods, such as focus groups and interviews, with personnel from both schools and CMHCs. Quantitative methods could further assess school-based practices and perceptions of both school and CMHC staff. Each of these efforts would help inform a collaborative and systemic approach to

implementing school mental health, specifically Tier 2 programs, within the overall WSCC model to ensure the health and academic success of all students.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

Informed Consent Informed consent was obtained from all individual participants included in this study.

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